INDIA WEATHER REVIEW, 1970

ANNUAL SUMMARY

PART - B

SNOWFALL

CONTENTS

National Oceanic and Atmospheric Administration

Environmental Data Rescue Program

ERRATA NOTICE

One or more conditions of the original document may affect the quality of the image, such as:

Discolored pages
Faded or light ink
Binding intrudes into the text

This document has been imaged through the NOAA Environmental Data Rescue Program. To view the original document, please contact the NOAA Central Library in Silver Spring, MD at (301) 713-2607 x124 or www.reference@nodc.noaa.gov.

Information Manufacturing Corporation
Imaging Subcontractor
Rocket Center, West Virginia
September 14, 1999

INDIA WEATHER REVIEW, 1970

ANNUAL SUMMARY - PART - B

S N O W F A L L

This part contains a summary of the reports of snowfall in the mountainous regions to the north of India based on (a) records of snowfall observations made at the observatories and (b) reports collected by local officers from the local residents, headmen of villages or from travellers who have passed through the region, and then transmitted to this office.

The amount of snowfall is usually measured by finding the depth of undisturbed snow lying on the ground. The measurements are given in metres or centimetres. At places provided with raingauges the snow, collected in the gauge, is melted & measured as rain. The heights of well-known peaks are reported to the nearest metre, wherever available, while the heights of mountain ranges etc. are reported in tens of metres. In the description the figures given for depths for a month indicate the total amount of snowfall which occurred during that month.

Winter Period - January & February

I - JAMMU AND KASHMIR

BARAMULLAH DISTRICT

Gulmarg (2652 m.) - Eight snowfalls were reported over the area and the mountains of Handibal and Afarwat in January on 11, 15, 16, 24-26, 29 and 30. Total precipitation was 71.2 mm. It was reported that the snowfalls were less frequent than the last year.

In February, nine snowfalls were observed over the area and surrounding mountains. Total precipitation was 89.4 mm which was reported as below the normal.

SRINAGAR DISTRICT

Srinagar (1585 m.) - There was snowfall on six occasions in January and total precipitation was 19.5 mm. This was much below normal. The snow accumulation was reported as highest of the season so far.

There was no snowfall in the valley in February. It snowed on high passes and peaks. This was much below normal.

Accumulation of snow increased during the period.

Qazigund (1690 m.) - January had seven days of snow of light to moderate intensity.

Accumulation was about 33 cm which was said to be much below normal.

In February, there was only one very light snowfall. There was no accumulation of snow. It was reported as much below the normal.

LADAKH DISTRICT

Khangral - Four snowfalls occurred in February. The depths reported were in the village area 12.7 cm, Nomikala 0.3 m, and Fotula 0.5 m.

No report for January was received.

II - PUNJAB & HIMACHAL PRADESH

CHAMBA DISTRICT

Information on snowfall was as under :-

Name of Station	Depth of snowfall	Lowest descent of snow line	Snow depth on well known passes	Depth of snowfall	Lowest descent of snow line	Snow depth on well known passes
	JANUARY			FEBRUARY		
Chamba	2.54 cm	914 m	0.3 m	--	2130 m	--
Chhattrari	0.8 m	1767 m	0.3 m	--	--	--
Bhandal	80.01 cm	1680 m	0.5 m	--	--	--
Chowari	--	--	0.3 m	--	1680 m	--
Kala Top	2.5 m	1830 m	0.3 m	0.8 mm	2410 m	--
Bharmour	163.0 cm	2130 m	0.3 m	25.4 mm	2130 m	0.6 m
Tissa	25.4 mm	1520 m	0.5 m	--	2740 m	1.5 m
Kilar	126 cm	2440 m	0.5 m	45 cm	2530 m	1.5 m

Snow accumulation

Name of Pass	Accumulation (depth in metres)	
	January	February
Sach	0.5	1.5
Drati	0.5	1.5
Kali Chho	0.5	0.6
Padhari	0.5	0.3
Basodhan	0.3	0.15
Choblia	2.5	2.0
Kugti	2.5	2.0

The snowfall for January was below normal and much below normal for February.

Upper Chamba Range - It was reported that highest peaks of the range such as Kankot, Sakrew and Ballani received snowfall on 25, 26 and 29 January to a depth of 0.9 m in the form of hailstones, and similarly in February on 25 and 28 to the depth of 0.3 m.

Snow accumulation was as given below :-

Peak	Accumulation (metres)	
	January	February
Ballani	6.1	6.7
Kankot	5.5	6.1
Sakrew	4.3	4.9

The snowfall was normal for January and much above normal for February.

KINNAUR DISTRICT

The snowfall reported from various stations was as under :-

Station	January	February
Kilba	57.9 cm	0
Sangla	74.4 cm	76.2 mm
Shongtong	0.31 m	0
Pulbani	1.27 m	0.2 cm
Giabang	70 cm	19.0 mm
Pooh	63 cm	15.0 mm
Namgia	105 cm	21.7 mm

Snowfall was below normal at Kilba and Sangla in both the months, and at Pulbani normal in January and much below normal in February.

MAHASU DISTRICT

Shilaroo (2591 m) - In January, snowfall was 1.9 m and in February 0.4 m. Snowfall was above normal in January and below normal in February.

Phancha (2271 m) - 92.0 mm and 94.6 mm (water equivalent) of snow fell respectively in January and February. This was much below normal for both the months.

Chopal (2342 m) - Snowfall occurred upto a height of 1710 m on 12, 15, 20, 30 and 31 January and up to a height of 1070 m on 21, 25, 26 and 27 January. Total snow during January was 1.6 m which was much above normal.

Depth of snow on Churdhar peak was 3.5 m. The heaviest fall was 0.4 m

on 21st January. The snowline was upto 1830 m and the total snowfall was 10.2 cm in February. This was much below normal.

Depth of snow on Churdhar peak was 0.5 m.

Kumarsain (1388 m.) - Snowline in the sub-tehasil was upto a height of 1830 m and depth of snowfall 15 cm in February. This was much below normal.

Report for January was not received.

Accumulation on Hatoo and Narkanda peaks were 0.6 m and 0.5 m respectively.

Kotkhai (1676 m) - 17.8 cm of snow was reported in January. No snow fell in February. The depth of snow was 0.71 m and 0.32 m on mountain peaks between the heights 2290 to 2590 m.

Snowfall was below normal during both the months.

Suni (510 m) - No snow fell in January and February.

Arki (Tehasil) - In January, snow fell to the depth of 7.6 to 30 cm on various peaks at the height of 1370 m. It was normal for the month. No snow fell in February.

Solan (1530 m) - No snow fell at the station; but some slight snowfall was recorded at Galong and Karot peaks in January.

It was below normal. No snow fell in February, which was below normal.

Kasumpti (tehasil) - The tehasildar reported eight snowfalls with a monthly total of 4.6 cm in January. This was below normal.

SIMLA DISTRICT

Mashobra (2202 m) - Total snowfall was reported as 326 mm in January and 44.6 mm in February.

Simla (2202 m) - There were snowfalls on seven days in January with a total of about 142 cm, the heaviest reported on a single day being 27.5 cm. No report for February was received.

III - UTTAR PRADESH

DEHRA DUN DISTRICT

Mussoorie (2042 m) - A total snowfall of 35.5 cm was reported in January on the mountain peak of Chakrata and nearby villages. In February, a trace of snow was reported in Mussoorie area.

TEHRI GARHWAL DISTRICT

Tehri Garhwal - Five snowfalls were reported in January. Their total depth was 1.75 m. The fall was on well known mountain peaks of Surkanda,

Nagtibha, Dhanolti and Bugadwara. The snowfall was normal.

No report for February was received.

Mukhim (1981 m) - There was light snowfall on 20th, the depth being 38 cm and sleet on 25th January, the depth being 30 cm. This was normal in January. Snow accumulation on higher passes was reported to be about 1 m.

No snow fell in February.

ALMORA DISTRICT

Patwari Malla Danpur reported the snowfall as under in various peaks of the district :-

Name of Peak	January		February	
	Snowfall	Accumulation	Snowfall	Accumulation
Kautela	1.7 m	1.7 m	1.8 m	2.0 m
Kafini	2.3 m	2.3 m	2.4 m	2.6 m
Bankatiya	4.4 m	4.1 m	4.6 m	4.7 m
Pindar	4.3 m	4.1 m	4.4 m	4.6 m
Nandadevi	4.6 m	4.7 m	4.9 m	5.2 m
Sunderdhunga	4.3 m	4.1 m	4.4 m	4.4 m

On an average, snowfall was above normal in January and in February.

NAINITAL DISTRICT

Mukteswar (2310 m.) - There were five days of snow in January with a total depth of 50.7 cm. It was much above normal. Heaviest fall recorded on a day was 25.4 cm on 26th.

In February, snow fell on 24th and the depth was 1.3 cm which was much below normal.

Nainital (1953 m) - Snow fell on 21st and 27th with a total of 92 mm in January, the minimum temperatures on these days were : 1°C and -2°C respectively.

Pre-Monsoon Period - March to May

I - JAMMU AND KASHMIR

BARAMULLA DISTRICT

Gulmarg (2652 m) - Nine snowfalls were observed in March, giving total precipitation of 258.7 mm. They covered the whole area of Gulmarg including Handibal and Afharwat mountains. The snowfall was above normal.

Twelve snowfalls were observed on the tops of Handibal and Afharwat mountains and total precipitation was 98.0 mm in April. It was above normal.

Eleven snowfalls were reported for May and total precipitation 75.1 mm. This was much below normal.

SRINAGAR DISTRICT

Srinagar (1585 m) - There was snow on high mountains only in March. Total precipitation was 66.8 mm. It was much below normal. Snow accumulation was described as the maximum of the year.

There was no snowfall in the valley in April. This was below normal. Snow accumulation has started melting away.

In May, light snow occurred on mountain peaks and passes. This was much below normal.

Qazigund (1690 m) - Only one snowfall occurred in March. - There was no snow accumulation.

There was no snowfall in April and May.

UDHAMPUR DISTRICT

Banihal (1624 m) - March and April reports were not received. In May, there was neither snowfall nor snow accumulation.

LADAKH DISTRICT

Leh (3514 m) - No snowfall in May; but accumulation was about a metre on passes and peaks. No reports were received for March and April.

Khangral - Snowfall was 35.6 cm at the place, 0.9 m at Fotula and 0.6 m at Nomikala in March. In April, snow fell three times, 2.5 cm at the village, 10 cm at Nomikala and 12.7 cm at Fotula. No report for May was received.

II - PUNJAB AND HIMACHAL PRADESH

CHAMBA DISTRICT

Bharmaur (2155 m) and Kilar (2564 m) - These two stations only from this district, reported snowfall, in March, of depths 2.5 cm and 12.5 cm respectively. Snowline was said to have descended to 2100 m. None of the stations reported any snow in April and May. However, there was snow amounting to 1.2 m during each of the months April and May on well known passes around Tissa and Kilar. Reports for these stations indicate that, on the average, the snowfall over the area was below normal for March and April and normal for May.

Snow accumulation on various passes was reported as under :-

Name of pass	Snow Accumulation (Metres)		
	March	April	May
Sach	1.5	1.2	1.2
Drati	1.5	1.2	1.2
Kalichho	0.6	0.9	0.6
Padhri	-	-	-
Basodhan	-	-	-
Chalia	1.2	0.6	0.5
Kugati	1.2	0.9	0.6

Upper Chamba Range (Forest Division Dalhousie) - There was neither snowfall nor snow accumulation in April. May report said that snowfall in the shape of hail to a depth of 20.3 cm observed on mountain peaks of Sakrew, Kankot and Ba l iani for two days. Snow accumulation on these peaks was reported as 15.2, 20.3 and 25.4 cm respectively. The snowfall was above normal for May. Snowfall report for March was not received.

Chamba Forest Division - A little snowing was at 2130 m and above. Snow accumulation was 1.3 to 15.2 cm on Sach, Cheni, Duga, Bhadru and Moru which was temporary.

Dalhousie Forest Division - Snowfall in May was above 2440 m elevation and the accumulation was 2.4 - 3.0 m on well known peaks.

KULU DISTRICT

As inferred from the report for June, snow accumulation by the end of May on various mountain peaks varied from 0.5 m (on Bhaboo) to 3 m (on Rotang, Kolhi Manali). The accumulations (in metres) on the various peaks were : Hamta 1.8, Rotang 3, Barshai 1.2, Bhaj Dhari 1.8, Chanderkhani 0.9, Lohri Achhr 0.6, Sari 0.6, Bhaboo 0.5 and Basturi 0.6.

KINNAUR DISTRICT

Kilba (1829 m) - No snow fell in March and May, which was below normal. April report was not received.

Sangla (2591 m) - March had 177.0 mm of snow and nil in May. April report was not received. March fall was below normal and that for May normal.

Shongtung - There was no snowfall in March. Reports for April and May were not received.

Purbani (2286 m) - No snow fell in March. Reports for April and May were not received. March snow was below normal.

Pooh Forest Range - Pooh, Giabang and Namgia stations of the range reported no snowfall during the period.

MAHASU DISTRICT

Kotkhai (1676 m) - There was no snowfall during the period March-April. It was below normal for March and normal for April. Report for May was not received. 2.5 cm of snow fell on the high peaks in March.

Shilaroo (2591 m) - No snowfall was reported for March and April. For April it was normal. Report for May was not received.

Chopal (2342 m) - There was no snowfall in March, April and May. It was below normal in March and normal in April and May.

Suni (510 m) - No snow fell during March and April. It was below normal for March and normal for April. Report for May was not received.

Arki - 'Nil' was reported for the whole period,, which was normal.

Kasumpti (1989 m) - No snowfall was reported during the period in the tehasil.

Kumarsain (1388 m) - No snow fell during the whole period. For March it was below normal.

Solan (1530 m) - Snowfall did not occur in March and April. Report for May was not received.

SIMLA DISTRICT

Simla (2202 m.) - There was no snowfall throughout the period March-May.

III - UTTAR PRADESH

DEHRA DUN DISTRICT

Mussoorie (2042 m) - No snowfall was reported for the whole period.

TEHRI GARHWAL DISTRICT

Naib Tehasildar, Dhanolti, reported a snowfall at the elevation of 2130 m on the 19th of March. Its depth was 2.5 cm and occurred on well-known mountain peaks of Surkhanda and Nagtibba. The snowfall was below normal.

There was no snowfall both in April and May and this was normal.

Mukhim (1981 m) - No snowfall was reported for March and April. Report for May was not received.

ALMORA DISTRICT

The following table gives the snowfall and accumulation of snow as reported by Patwari, Malla, Danpur :

Name of Peak	Snowfall (in metres)			Accumulation (in metres)		
	March	April	May	March	April	May
Kautela	0.9	0.6	0.3	1.1	0.8	0.6
Kafini	1.2	0.9	0.6	1.4	1.1	0.9
Bankatiya	2.0	1.4	0.9	2.3	1.7	2.1
Pinder	2.1	1.2	1.2	2.3	1.5	2.1
Nandadevi	2.6	1.7	1.5	2.6	2.0	2.7
Sunderdhunga	2.1	1.2	1.2	2.3	1.5	2.4

The snowfall was normal for March and April and much above normal for May over the patti.

NAINITAL DISTRICT

Mukteswar-Kumaon (2310 m.) - No snowfall occurred during the whole period March-May. The snowfall in March was below normal.

Pauri-Garhwal - March and April reports were not received. May had no snowfall.

Southwest Monsoon Period - June to September

June - July

I - JAMMU & KASHMIR

BARAMULLAH DISTRICT

Gulmarg (2652 m) - Ten days of snowfall were reported, snowfall having occurred on tops of Handibal and Apharwat mountains in June. Total precipitation of 114.4 mm was much above normal. Snow accumulation was reported to be very little.

Only one case of snowfall was reported in July on the mountain tops which was normal. Snow accumulation was little on mountain tops.

SRINAGAR DISTRICT

Srinagar (1585 m) - No snow fell in June and July and accumulation on high mountain tops was also little. Snowfall was below normal in June and normal in July. The accumulation was said to be too less resulting in shortage of water for drinking and agriculture.

Qazigund (1690 m) - No snowfall was reported during the period.

LADAKH DISTRICT

Khangral - Snowfall occurred thrice in June : 5.1 mm at the station, 10.2 mm at Fotula and 7.6 cm at Nomikala. The same amounts of accumulation also were reported on Fotula and Nomikala. In July also, snowfall occurred three times. Fotula recorded 15 cm of snowfall and Nomikala 10 cm.

II - PUNJAB & HIMACHAL PRADESH

CHAMBA DISTRICT

None of the following raingauge stations reported any snowfall during June-July :-

1. Chamba
2. Ludrera
3. Chhattrari
4. Bhandal
5. Chowari
6. Bathri
7. Kalatop
8. Bharmaur
9. Tissa
10. Bhanouta
11. Kilar and
12. Holi

This was normal for these months.

Snow accumulation on well-known passes such as Sach, Drati etc. was reported as 0.9 m in June and nil in July.

Upper Chamba Range (F.D. Dalhousie) - The Range Officer reported 2.5 to 4.0 cm of snowfall (in the shape of hailstones) on two days each in June and July on the highest peaks of the range viz. Sakrew, Kankot and Baliani. This was below normal for both June and July.

Similar depths of accumulation were also reported on these peaks in June and July.

KULU DISTRICT

There was no snowfall in June, which was normal. Snow accumulation also melted away during the month from all the peaks except Rotang on which 0.3 m of accumulation remained at the end of the month. July report was not received.

KINNAUR DISTRICT

Kilba Range - Kilba (1829 m) and Sangla (2591 m) - No snowfall occurred during the period. It was normal for both these months.

Pooh Range :- Pooh, Namgia and Giabang stations reported no snowfall in July. Report for June was not received.

MAHASU DISTRICT

Chopal (2342 m) and Kumarsain (1388 m) - No report was received for June. July had no snowfall.

SIMLA DISTRICT

Simla (2202 m) - Report for June was not received. July had no snowfall.

III - UTTAR PRADESH

DEHRA DUN DISTRICT

Mussoorie (2042 m) - No snowfall occurred in June. July report was not received.

TEHRI GARHWAL DISTRICT

Snowfall was 'nil' in June in the district which was normal. There was no report for July.

ALMORA DISTRICT

Reports from the Patwari of Malla Danpur are tabulated below :

Name of Peak	Snowfall (Metres)		Snow accumulation (Metres)	
	June	July	June	July
Kautela	0.2	0	0.3	0
Kafini	0.3	0.2	0.6	0.6
Bankatiya	0.6	0.5	1.2	1.5
Pinder	0.8	0.6	1.2	1.7
Nanda Devi	1.2	1.1	1.8	2.1
Sunderdhunga	0.8	0.5	1.4	1.5

The snowfall was above normal in June and normal in July.

NAINITAL DISTRICT

Mukteswar-Kumaon (2310 m) - No snow fell during the period June-July.

August - September

I - JAMMU AND KASHMIR

BARAMULLA DISTRICT

Gulmarg (2652 m) - No snow fell in August, which was normal. Some snow accumulation was there on mountain peaks and passes.

Six cases of snowfalls were observed in September on the tops of Handibal, Apharwat and Harmukh mountains. The snowfall was below normal. Precipitation was 53.9 mm. Snow accumulation in patches was present on certain mountain passes.

SRINAGAR DISTRICT

Srinagar (1585 m) - No snowfall was reported from the station in August. This was normal.

Snow accumulation was reported to be less than usual which was said to have caused drought conditions in some areas and drinking water shortage in Srinagar City.

Snow was reported to have appeared on the high mountain peaks towards west by the mid-September. Snow accumulation was also fairly good there. Snowfall was below normal for September.

Qazigund (1690 m) - No snow fell during the period August-September.

LADAKH DISTRICT

Khangral - No snow fell in August. In September snow fell on Fotula (15 cm) and Namikala (10 cm) only.

II - PUNJAB & HIMACHAL PRADESH

CHAMBA DISTRICT

Report from the district authority, based on observations from about eleven raingauge stations, indicated no fall of snow in the district in August and September. Only the Range Officer, Bharmaur, reported old accumulation of snow of about 0.6 m on the Kalichho, Kugti and Chobia passes during the period.

The snowfall was normal in both the months.

Upper Chamba Range - Snowfall in the form of hailstones amounting to about 20.3 cm in August and 5.1 cm in September was reported on the highest peaks of Sakrew, Kankot and Baliani, which was much above normal for August and below normal for September.

Amount of snow accumulation was : Baliani 22.9 cm, Kankot 17.8 cm and Sakrew 20.3 cm in both August and September.

KINNAUR DISTRICT

Report for August was not received. For September both Kilba (1829 m) and Sangla (2591 m) reported no snowfall, which was below normal for Kilba.

MAHASU DISTRICT

Chopal (2342 m) - No snow fell during the period.

Kumarsain (1388 m) - No snowfall occurred during the period.

SIMLA DISTRICT

Simla (2202 m) - There was no snowfall both in August and September.

III - UTTAR PRADESH

ALMORA DISTRICT

The following table shows the snowfall and its accumulation on the high peaks of the patti Malla Danpur as reported by the Patwari.

Name of Peak	Snowfall (Metres)		Accumulation (Metres)	
	August	September	August	September
Kautela	0.2	0.6	0.2	0.3
Kafini	0.6	0.9	0.8	1.5
Bankatiya	0.8	1.4	1.5	2.4
Pinder	0.6	1.2	1.8	2.4
Nanda Devi	1.2	1.8	2.4	3.0
Sunderdhunga	0.6	1.1	1.5	2.1

The fall was above normal in August and much above normal in September.

NAINITAL DISTRICT

Mukteswar-Kumaon (2310 m) - There was no snowfall in August and September.

Post-Monsoon Period - October to December

I - JAMMU AND KASHMIR

BARAMULLA DISTRICT

Gulmarg (2652 m) - Five cases of snowfall were reported, four of which were on Handibal, Apharwat and Harmukh mountains and one covering the whole area. Total precipitation was 91.0 mm which was above normal for October.

No snow fell in November. In December there were three snowfalls all over the area. Total precipitation was 16.8 mm. This was said to be normal.

SRINAGAR DISTRICT

Srinagar (1585 m) - No snowfall occurred in both October and November. This was below normal for these months. A fairly good accumulation of snow on the mountains to the east and west was present during the months.

In December, snow fell only once and this was said to be much below normal. Snow accumulation on higher passes was of usual depth.

Qazigund (1690 m) - No snowfall was reported for the whole period.

LADAKH DISTRICT

Khangral - There were three cases of snowfall during October amounting to 0.6 m at Fotula, 0.3 m at Nomikala and only 0.15 m at the village itself. It was reported for December that there was complete absence of snowfall, even on usually snowprone high mountains, such as

Namikala. This was much below normal and drought conditions were reported.

Report for November was not received.

II - PUNJAB AND HIMCHAL PRADESH

CHAMBA DISTRICT

The district reports for October and November indicated no snowfall occurrence, which can be said to be below normal for each of these months. Snow accumulations were as under :-

Name of Pass	Snow accumulation in Metres		
	Oct.	Nov.	Dec.
Sach	0.3	0.3	--
Drati	0.2	0.2	--
Kalichho	0.2-0.6	0.2-0.3	0.0
Padhari	--	--	--
Basodhan	--	--	--
Chalio	0.6	0.3	0.0
Kugati	0.6	0.3	0.0

Snowfall was reported above 3660 m altitude in October and 3350 m altitude in November.

Bharmaur - Report for December said that there was no snowfall.

Trehta Range - Report was received only for November, which said that snowfall was 'nil'.

Upper Chamba Range - Snow to a depth of 0.3 m fell on high peaks of the range on 20th and 23rd of October. This was above normal.

In November also, snowfall was 0.3 m on 27th on the high peaks, which was above normal.

No snow fell in December which was below normal.

Snow accumulations were as follows :-

Name of Peak	Snow accumulations in metres		
	October	November	December
Baliani	0.4	0.4	0.0
Kankot	0.3	0.3	0.0
Sakrew	0.3	0.3	0.0

KINNAUR DISTRICT

Kilba Range - Kilba (1829 m) and Sangla (2591 m) raingauge stations of the range each reported no snowfall during the period. This was below normal for each of the stations for all of the months October, November and December.

MAHASU DISTRICT

Chopal (2342 m) - No snow fell during October, November and December. It was below normal for December.

Solan (1530 m) - No snowfall occurred during the period. It was below normal for December.

SIMLA DISTRICT

Simla (2202 m) - There was no snowfall during the period October to December.

III - UTTAR PRADESH

DEHRA DUN DISTRICT

Mussoorie (2042 m) - Snow did not fall during the three months October-December. It was normal for December.

ALMORA DISTRICT

The Patwari of the Malla Danpur patti reported snowfall as tabulated below :-

Name of Peak	Snowfall (Metres)			Snow Accumulation (Metres)		
	Oct.	Nov.	Dec.	Oct.	Nov.	Dec.
Kautela	0.8	0.9	1.1	0.5	0.6	0.8
Kafini	1.1	1.4	1.5	1.8	2.1	2.4
Bankatiya	1.5	1.8	2.1	2.9	3.0	3.2
Pinder	1.4	1.5	1.8	2.6	2.7	2.9
Nanda Devi	2.3	2.4	2.7	3.4	3.7	3.7
Sunderdhunga	1.2	1.5	1.7	2.4	2.6	2.7

The snowfall for October was much above normal, for November above normal and for December normal.

NAINITAL DISTRICT

Mukteswar-Kumaon (2310 m) - October, November and December had no snowfall. It was below normal for December.

S U M M A R Y

Winter Period - January and February

Snowfall was below normal in Jammu and Kashmir, slightly below normal in Punjab and Himachal Pradesh, while slightly above normal in Uttar Pradesh during the period as a whole.

Premonsoon Period - March to May

Occurrence of snow was slightly below normal during this season in Jammu and Kashmir, Punjab and Himachal Pradesh, while it was normal in Uttar Pradesh.

Monsoon Period - June to September

June - July :-

Normal snowfall occurred during this period in Jammu and Kashmir, Punjab and Himachal Pradesh. The snowfall was slightly above normal in Uttar Pradesh during the period.

August - September :-

In this latter half of the monsoon season snowfall was slightly below normal over Jammu and Kashmir, normal over Punjab and Himachal Pradesh and slightly above normal over Uttar Pradesh.

As expected, the snow-line during the season remained high.

Post-Monsoon Period - October to December

Snowfall was slightly below normal in Jammu and Kashmir, Punjab and Himachal Pradesh. It was slightly above normal in Uttar Pradesh.

- - - - -

Note :- It is not possible to adopt a single classification of seasons which will be satisfactory for the whole of India. The classification adopted in this publication is devised from the point of view of rainfall in the country.

SG/